The relationships of the Crombecs *Sylvietta ruficapilla* Bocage and *Sylvietta whytii* Shelley

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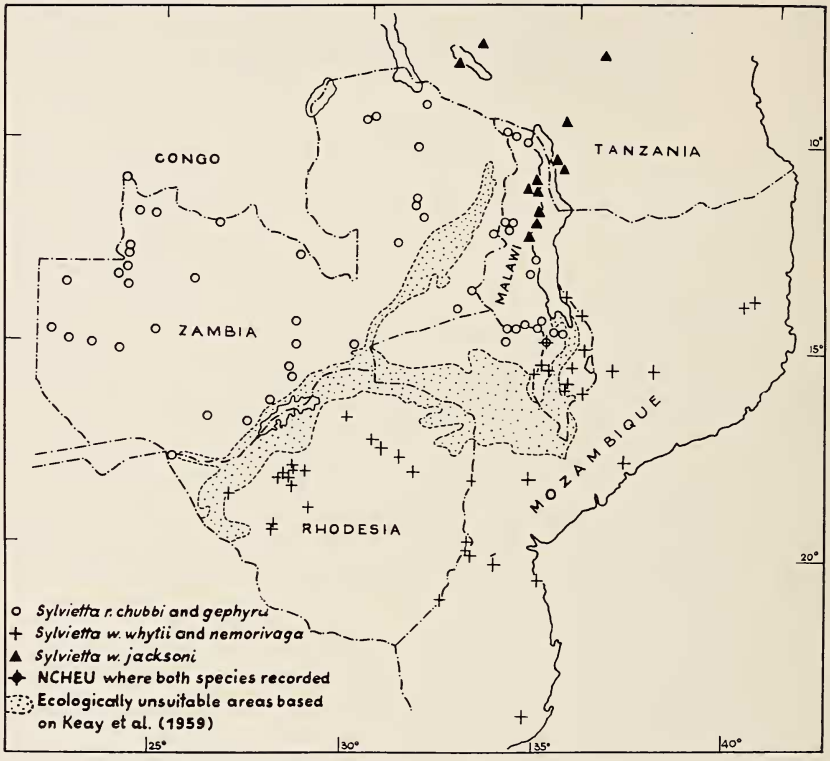
1. Introduction

The Red-capped Crombec *Sylvietta ruficapilla* Bocage is considered by Benson and Irwin (1966, p. 301) to be endemic to the *Brachystegia* woodland biome, though unknown per their table I from geographical divisions (3) Western Tanzania, (5) Malawi and northern Moçambique east of the Lake Malawi/Shire Rift, (6) south-eastern Tanzania, (7) Rhodesia and (8) southern Mocambique (coast littoral south of 20°). The rather dissimilar *Sylviettta whytii* Shelley in the southern part of its range is also restricted to *Brachystegia* woodland, being found according to the above table in geographical divisions (3—8), covering, with the exception of division (4), Rhodesia and Moçambique, whence with some subsequent qualification below, *ruficapilla* is unknown, with the exception of that part of division (4) in Malawi, west of the Lake/Shire Rift, where both occur and replace each other. Everywhere within *Brachystegia* woodland the two species forage only within the tree canopy and show no obvious ecological or behavioural differences.

No general discussion of the inter-relationships of the genus *Sylvietta* as a whole exists, nor has *ruficapilla* at any stage been closely associated with any other member of the genus. Irwin (1959, p. 286—294) has discussed the relationships of *S. rufescens* and *whytii,* both being very similar and considered siblings. *S. ruficapilla,* however, differs rather strikingly from either in its generally greyer appearance, and whiter underparts, relieved, dependent upon the race, by a rich chestnut pattern affecting the crown, ear-coverts and chest. None of the races in fact resemble *rufescens* or *whytii.* Nevertheless a great deal of evidence has now accumulated to show that *ruficapilla* is in all probability more directly related to *whytii* than it is to *rufescens* or any other member of the genus, despite their superficially dissimilar appearance.

It can be shown that *ruficapilla* and *whytii* are almost completely allopatric, either through the existence of natural geographic barriers, or mutual exclusiveness, with but one known point of marginal overlap in Malawi. A situation too would appear to have arisen where those populatons likely to come into physical contact have developed voice differences, while, where a geographical barrier exists and there is no likelihood of contact, their calls are indistinguishable. As already outlined

ruficapilla has largely a western distribution, *whytii* an eastern. Their respective ranges in south-central Africa may be defined as follows (see map).



The distribution of *Sylvietta ruficapilla* and *S. whytii* in south-east Africa, based on localities mentioned in the text, certain sound records, quoted references and material in the National Museum, Bulawayo, and the National Museum of Zambia, Livingstone.

2. Range

Zambia and Rhodesia

Ruficapilla is widespread on the Zambian plateau wherever *Brachystegia* woodland predominates, where, as shown by Benson and Irwin (1962, p. 167) it reaches to the lip of the Zambesi escarpment in the Choma District at 17° 00′ S., 27° 20′ E. and in the Gwembe District at 16° 31′ S., 27° 40′ E., and to Kasusu. Its known range can now be extended even further, south of the Zambesi River to Nampini Ranch at 17° 56′ S., 25° 18′ E., in extreme north-western Rhodesia and within two miles of the Botswana border, where the writer collected a single specimen in Kalahari sand

Brachystegia, on 3rd April 1967. This constitutes the first record of the species in the South African Sub-region, thus adding this species to division (7).

Throughout the greater part of Rhodesia, *whytii* is widespread wherever *Brachystegia* and to a less extent *Baikiaea* woodland is predominant. However, neither species occurs in the Middle Zambesi Valley east of the Victoria Falls, where ecologically unsuitble mopane woodland predominates, nor is either likely to occur in the similar, rather dry, low-lying country largely below 3,000 feet in the Wankie District, whence *whytii* is known no further west than Main Camp in the Wankie National Park at 18° 43′ S., 26° 57′ E. Within Rhodesia *ruficapilla* is therefore restricted to west of the low-lying Wankie trough, while *whytii* is confined to the east, constituting, like the Middle Zambesi, an absolute barrier. Taking into account such ecologically unsuitable terrain, the *Brachystegia* woodlands in extreme western Rhodesia constitute faunally part of division (2), or Zambia west of the Luangwa Valley.

Malawi

The position in Malawi is of particular importance, as it is only in this territory that the two species are known to come together without the existence of an ecological barrier. In the discussion that follows I am in particular indebted to Mr C. W. Benson who has amplified in detail the information given in Benson (1953), in which the distribution of the two species can now be re-defined. Co-ordinates or other supporting locality information is now given for places not in the above reference.

Whytii is widespread in the south of the country on the east side of the Lake Malawi/Shire Rift at Cholo, Blantyre, Zomba, Mlanje, Namwera and Fort Maguire, whence it extends into northern Moçambique where it is widespread (Vincent, 1935, p. 522). On the west of the Rift in the south it occurs at Neno, Tambo and Ncheu, but west of Lake Malawi itself it would appear to be partially replaced by *ruficapilla,* extending east from the Eastern Province of Zambia, until *whytii* re-appears at Kanyenda on the Lake Malawi littoral, thence northwards to Chinteche, where Benson reports it as common in the Chinteche District as a whole and further north to Nkata Bay, Mzumara and Njakwa, and there is a sound record from between Usisya and Chimaliro at 11° 12′ S., 34° 10′ E.

Ruficapilla occupies a more westerly range, from Ncheu (where *whytii* has also been obtained) and Dzunje, 6 miles east-north-east thereof, as well as extending to Furancungo, in neighbouring Moçambique (Vincent, 1935, p. 524), thence north and west to Pirilongwe, Dedza and ten miles to the north-east of Ngononda, Mphunzi, Kafere at 14° 30′ S., 33° 42′ E. (specimen in the American Museum of Natural History) and the Dzalanyama Mountains at 14° 37′ S., 33° 37′ E. A hiatus would then seem

to exist until it re-appears at Nchisi, and Kota Kota on the Lake Malawi littoral, due possibly to the presence in the intervening region of considerable areas of *Combretum, Acacia* and *Terminalia* woodland, generally unsuited to either species, but much frequented by *S. rufescens*. It would appear similarly to continue to range northwards west of the range of *whytii* (which in this sector seems virtually restricted to the lake littoral), as *ruficapilla* occurs further to the west at Loudon, Edingeni and Mzimba, being regarded by Benson as common in the Mzimba District as a whole. There is then a gap of over 150 miles until it re-appears in the extreme north at Fort Hill. In this northernmost part of the country there are also sound records from the lower part of the Masuku Mountains ca 9° 45′ S., 33° 40′ E., as given in Benson (1937, p. 571) and from 15 miles north-west of Karonga (Benson, 1940, p. 627).

Though both species appear widespread throughout their respective ranges, the only locality where both have been collected is Ncheu, by Benson. Benson has further, no reason to suppose that they do actually occur on the same ground. Thus referring to the map, it would seem quite possible that the specimen of *ruficapilla* was obtained just north of Ncheu, and that of *whytii* to the south. There is thus no evidence of any genuine sympatry, nor is it likely that there would be an ecological difference. Elsewhere in Malawi they would appear to occupy discrete and independent ranges, with *ruficapilla* bisecting the range of *whytii* south-west of Lake Malawi.

Following the taxonomic arrangement in Benson (1953, p. 60), nominate *whytii* occurs only in the south, replaced by an isolated population of *S. w. jacksoni,* from Kanyenda northwards. The Lake in this instance forms a barrier between *jacksoni* on the west, with nominate *whytii* on the east in Moçambique. However, on the Tanzanian littoral at the north end of the lake, it becomes replaced by *jacksoni* (Sassi and Zimmer, 1941, p. 311).

Tanzania

Ruficapilla is unknown from Tanzania as a whole, though in the Congo it reaches northwards on the west side of Lake Tanganyika to Mahila at 5° 15′ S., 28° 27′ E. (Schouteden, 1955, p. 242). *Whytii* on the other hand is widespread, though exhibiting a peculiar ecological dichotomy. From Malawi southwards it differs in no way ecologically from *ruficapilla,* in its restriction to *Brachystegia* woodland. However, in Tanzania the race *jacksoni* is for the most part confined to more arid *Acacia* savanna, a habitat more typical of *rufescens* elsewhere, where it is definitely known to extend as far south in this association as the low-lying internal drainage of the Rukwa Valley, at a minimum altitude of 2,600 feet (Vesey-Fitzgerald and Beesley, 1960, p. 105), from whence there are specimens in the collection of the National Museum, Bulawayo, from Kambangombe at 07° 24′ S.,

31° 50′ E., and Tumba (= Itumba) at 07° 30′ S., 31° 40′ E. *Brachystegia* extends to the eastern and western escarpments of the Rukwa Valley, but there is no evidence that either species occurs there, though it is very probable that *ruficapilla* extends from the Mbala District of Zambia.

Elsewhere on the north-east side of Lake Malawi, Sassi and Zimmer (1941, p. 311) record the race *jacksoni* from the lake littoral at Lituhi (= Lithuli) at 10° 25′ S., 34° 35′ E., and Mtindi, as well as Myangayanga, a tributary of the Ruhuhu River, which drains into the lake. Lynes (1934, p. 91—92) obtained *jacksoni* in the Iringa uplands and the Ubena-Uhehe highlands, but points out that it was scarce at higher levels, individuals only occasionally wandering upstream in riparian growth from the lower ground. Haldane (1956, p. 19) reports a generally similar situation in the Njombe District (covered also by Lynes), where it is again said to frequent riparian growth in the highlands, though commoner at moderate altitudes. In addition it would seem quite probable that *ruficapilla* may well extend over the Malawi border at the head of Lake Malawi, between Tukuyu and Mwaya, but further north, the very high ground at over 7,000 feet may prevent any contact taking place.

In these highlands as a whole *whytii* does not appear to frequent any specific vegetation type, but rather to occupy an ecotone, so that in this general area there may well be an ecological transition from *Acacia*-frequenting as in the Rukwa Valley, to *Brachystegia* as from Malawi southwards. Nevertheless it is certainly unusual that the *Acacia* specific population of *jacksoni* from Tanzania should be quite indistinguishable from that isolated in *Brachystegia* on the western littoral of Lake Malawi.

To sum up the geographical situation it will be seen that natural geographical and ecological barriers to a great extent effectively isolate the populations of these two species, with the exception of a very limited area in Malawi, but there is good reason to believe that, where there are no such barriers, behavioural differences, as reflected by voice, may play an effective part as isolating mechanisms.

3. **Voice (song-call)**

Benson (1937, p. 571) described the voice of *ruficapilla* in Malawi as a loud and ringing *„chee, chee, che-e-e"*, with emphasis on the last syllable. A further perhaps more appropriate rendering as given by Mackworth-Praed and Grant (1963, p. 251), was provided by Benson and is described as a loud and ringing *„richi-chichi-chichir"*, repeated half a dozen times and Benson tells me that this is what he understands to be the song-call, and considered quite distinct from that of *whytii* in the same territory. Mackworth-Praed and Grant in the same reference give the call of *whytii* as *„si-si-si-see"*, though Benson informs me that the best rendering of the song-call is that provided by Belcher (1930, p. 232) who describes it as a far-carrying trill.

This may represent the twittering, described by Vincent (1935, p. 522), or the *„wit-tit-tit-tit-tit-tit"*, as given by Irwin (1959, p. 289) for Rhodesia, certainly most unmusical and with which the writer has subsequently become even more familiar.

When the Rhodesian *ruficapilla* was first observed in the field it was confidently identified by both call and behaviour as *whytii,* the voice being considered indistinguishable from that species and quite unlike that ascribed to *ruficapilla* from Malawi. So striking were the similarities, that it was with the greatest surprise, when collected, that it was found to be *ruficapilla,* not *whytii.* C. J. Vernon *(in litt.)* and pers. comm. to Benson, had a very similar experience in Zambia, at Rufunsa, west of the Luangwa Valley, where *whytii* is unknown. On this occasion Vernon observed and identified, in the same manner, a *Sylvietta* in the *Brachystegia* canopy, which he also with confidence attributed to *whytii,* with which he was very familiar in Rhodesia. Benson correctly disputed this field identification. However, several weeks later while travelling through the same district, a particular effort was made to obtain a specimen. In this they were successful, the bird as expected by Benson, turning out to be *ruficapilla.*

There is thus a strong body of evidence that *ruficapilla* west of the Luangwa, the valley of which forms a barrier, from whence the species as whole is absent, shares the voice of *whytii* in Rhodesia and Malawi. Such an unexplained voice transference between different species of *Sylvietta* is already known. Benson (1946, p. 197), has discussed the case where in parts of Kenya and southern Ethiopia, *whytii* has a call indistinguishable from that of the race *S. rufescens pallida* in southern Malawi. It is evident that, as with *whytii,* with *ruficapilla* there are marked geographical variations in the calls.

Summing up the role played by voice within the members of this closely related group, it would seem that the calls only differ significantly in those regions where there is some general form of contact or sympatry as between *rufescens* and *whytii* or *rufescens* and *ruficapilla,* with a further difference between *ruficapilla* and *whytii* where their ranges meet. Elsewhere, where there is no such impingement, reinforced by natural ecological or geographical barriers, there are no voice differences. Hence in such parts of their mutual ranges the necessity for the existence of differences in voice, as isolating mechanisms, no longer remains operative and they are indistinguishable.

4. Colour and pattern

Unlike other members of the genus both *ruficapilla* and *whytii* lack an eyestripe. Instead they have the sides of the face and ear coverts a varying degree of chestnut. *Whytii* though plain grey above has pale buffish

bases to the nape feathers, a character shared with *ruficapilla* and often a noticeable buffy suffusion on the forehead and crown, just that part of the plumage most subject to variation in *ruficapilla,* and ranging from wholly grey to a rich chestnut. Both have also in common dark slate grey bases to the throat feathers, tipped with white in *ruficapilla,* pale chestnut in *whytii,* giving a checkered appearance, not generally observable in any other species. Both *rufescens* and the closely related *S. brachyura* do in fact have greyish bases to the throat feathering, but this shows up only in very worn specimens and never gives a checkered appearance. The only significant differences are therefore not so much in pattern, as it might first seem, but in the proportional representation of chestnut colouration.

5. Size

Between the various populations of *ruficapilla* and *whytii* there exist considerable size differences, for the most part clinal. Thus the largely western races of *ruficapilla* are on the whole longer in wing length than those of *whytii* in the east. These may be summarised as follows, employing the nomenclature of White (1962, p. 728, 732) and as amended by Clancey (1966, p. 482) for *whytii.* All measurements are in millimetres.

S. ruficapilla

S. r. gephyra (North-Western Zambia)

9 ♂♂ 63—69 (66.3) 10 ♀♀ 61—66 (62.2)

S. r. chubbi (Remainder of Zambia, also ♂ Rhodesia, ♂ Malawi)

18 ♂♂ 62—71 (66.2) 24 ♀♀ 61—70 (64.0)

S. whytii

S. w. nemorivaga (Rhodesia)

16 ♂♂ 60—65 (62.4) 19 ♀♀ 58—61 (59.6)

S. w. whytii [Moçambique (from Clancey op. cit)]

12 ♂♂ 58—60 (57.4) 6 ♀♀ 53.5—57 (56.0)

Despite the absence of any overlap in the means between *ruficapilla* and *whytii,* these figures nevertheless show a decrease in size from west to east, affecting both species. Such clinal decreases in size from west to east occur in many such instances, such data being summarised and briefly discussed in Irwin and Benson (1967, p. 26—27), and infer some definite linear relationship, rather than fortuitous variation.

6. Summary

S. ruficapilla and *whytii* are shown to be closely related on the basis of similarities of voice and morphology. They are for the greater part

allopatric in their distributional pattern, except for a very limited area of possible marginal sympatry in Malawi. It is also shown that where they do come in contact a distinct difference in voice exists, whereas elsewhere the calls are apparently indistinguishable. They may therefore be conveniently considered as forming a superspecies.

7. Acknowledgements

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